



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,135	03/20/2007	Leif Axelsson	4660-5	3908
23117 7590 09/01/2009 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
BEYEN, ZEWDU A				
ART UNIT		PAPER NUMBER		
2416				
MAIL DATE		DELIVERY MODE		
09/01/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/584,135

Applicant(s)

AXELSSON ET AL.

Examiner

ZEWDU BEYEN

Art Unit

2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2009 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8500)
Paper No(s)/Mail Date 03/16/2009, and 02/12/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

- This action is responsive to amendment dated 05/19/2009.
- Applicant's amendments filed on 05/19/2009 has been entered and considered.
- Claims 1-17, are amended.
- Claim 19 is canceled
- Claims 1-18 are pending.
- The objection to the drawings is hereby withdrawn in view of Applicants' amendment.
- The rejection to the 35 USC § 101 rejections is hereby withdrawn in view of Applicants' amended claims.
- Claims 1-18 stand rejected.

Drawings

1. The drawings that are filled on 05/19/2009, are objected to because the drawings lack legends.

Information Disclosure Statement

Art Unit: 2416

2. An initialed and dated copy of applicant's IDS form 1449 submitted 03/16/2009, and 02/12/2009 are attached to the instant office action.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1,4, and 6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,2, and 6, of copending Application No. 10/584136.

Art Unit: 2416

Claim 1 of the instant application and claim 1 of copending application 10/584136 are substantially directed to the same subject matter; Claim 1 of copending application does not specify determining two routes. However, it would have been obvious to one ordinary skill in the art at the time the invention was made to add this feature to the invention defined by claim 1 of the instant application for the purpose of allowing nodes to route packets in different routes so that the intended node receives the packets more reliably

Claim 6 of the instant application and claim 6 of copending application 10/584136 are substantially directed to the same subject matter; Claim 6 of copending application does not specify determining routes. However, it would have been obvious to one ordinary skill in the art at the time the invention was made to add this feature to the invention defined by claim 6 of the instant application for the purpose of allowing nodes to route packets in different routes so that the intended node receives the packets more reliably

Dependent claim 4 of instant application and dependent claim 2 of the copending application 10/584136 are substantially directed to the same subject matter.

This is a provisional obviousness-type double patenting rejection.

Claim comparison table

Claim No.	Instant application	Claim No.	Pending Application No.
1	In an arrangement with a plurality, of nodes	1	10/584136 A method for efficient routing in a multiple hop wireless

	making up a multiple hop wireless communication network for routing data packets over transmission paths, a method for efficient routing in a said multiple hop wireless communication network, said method comprising providing link status information to a link status monitor by acquiring link status quality between nodes in the network; the link status monitor updating a routing element with said link status information; the routing element determining at least two possible routes with essentially similar link quality status for a data packet; and the routing element routing said data packet via the at least two determined routes.		communication network characterized in that, the routing method comprise the steps of: providing link status information by acquiring link status quality between nodes in the network; updating a routing element with said link status information; determining an appropriate route according to said link status information with respect to traffic content; and routing traffic according to said determined appropriate route.
4	The method according to claim 1 characterized in that said wireless link comprise the step of using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz.	2	The method according to claim 1 further comprising the step of using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz.
6	A system for efficient routing in a communication network having a plurality of nodes, each node comprising: link status acquiring means for acquiring information about link status between neighboring nodes; updating means for updating routing means with said link status information;	6	A system for efficient routing in a multiple hop wireless communication network comprising: acquiring means for acquiring link status information between infrastructure nodes in a network comprising a plurality of nodes; updating means for updating said link status information to a routing element; determination means for determining an appropriate route with respect to

Art Unit: 2416

determination means using said link status information for determining at least two possible routes with essentially similar link quality status routing of a data packet; and routing means for routing said data packet via said at least two determined routes.

traffic content; and routing means for routing data packets according to determined route

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 2416

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1,5-8, 11-14, and 17-18 are rejected under 103(a) as being unpatentable over Billhartz to (US-PG-PUB-2003/0204587), in view of Jain to (US7373543)

Regarding claims 1, 6, and 19, Billhartz teaches method for efficient routing in a multiple hop wireless communication network characterized in that data packets are routed over transmission paths **(see fig. 5, and abstract)**

providing link status information by acquiring link status quality between nodes in the network**(abstract, discloses monitoring traffic communicated between nodes) ;**

updating a routing element with said link status information**(abstract, discloses storing in each nodes traffic information in database) ;**

determining possible routes with essentially similar link quality status for said data packet**(abstract, discloses selecting routes based on the stored traffic information);**

routing said data packet via the determined routes**(abstract , discloses selecting routes, inherently the selected routes are used for the purpose of routing packets).**

Billhartz does not explicitly teach selecting two routes and routing packet via the two routes, However Jain teaches selecting two routes and routing packet via the two routes**(abstract discloses identifying a first path and a second path. The first path is**

between a first one of the network elements and a second one of the network elements, as is the second path, and A packet is sent from the first one of the network elements via the first path, while a duplicate packet is sent from the first one of the network elements via the second path)

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Billhartz selecting two routes and routing packet via the two routes, as suggested by Jain. This modification would benefit the system to deliver packets to the intended party more reliably(see Jain, col.2 lines 13-19).

Regarding claim 5, Billhartz teaches the method according to claim 4 characterized in that said transmission system comprise the step of using a transmission system standards IEEE 802.11 ({0075} discloses IEEE 802.11)

Regarding claim 7, Billhartz teaches a system according to claim 6 wherein communication between said nodes is wireless (**abstract, discloses wireless mobile nodes**).

Regarding claim 8, Billhartz teaches a system according to claim 7 wherein the communication network is an ad hoc network (**abstract, discloses a mobile ad hoc network**).

Regarding claim 11, Billhartz teaches the system according to claim 10 characterized in that said transmission system is IEEE 802.11 standards ({0075} discloses IEEE 802.11)

Regarding claim 12, Billhartz teaches a node in a communication network having a plurality of nodes (**fig.5 and abstract**) , said node comprising processing means for processing network control information(**abstract discloses each node generating traffic information based upon how much traffic is being communicated between various nodes in the network**) ; storing means for storing network control information(**abstract , discloses storing in each nodes traffic information in database**) ; transmission means for transmitting data packets(**it is inherent to any node in the communication network**) ; link status acquiring means for acquiring link information comprising link status and link quality between neighboring nodes(**abstract, discloses monitoring traffic communicated between nodes**) ; determination means using acquired link information for determining at least two routes to a destination for routing of a data packet(**abstract, discloses selecting routes based on the stored traffic information**); and routing means for routing said data packets via said determined routes(**abstract , discloses selecting routes, inherently the selected routes are used for the purpose of routing packets**).

Regarding claim 13, Billhartz teaches the node according to claim 12 wherein communication between nodes is wireless (**abstract, discloses wireless mobile nodes**).

Regarding claim 14, Billhartz teaches the node according to claim 13 wherein said communication network is an ad hoc network (**abstract, discloses a mobile ad hoc network**).

Regarding claim 17, Billhartz teaches the node according to claim 16 characterized in that said transmission system is IEEE 802.11 standards ([0075] discloses IEEE 802.11).

Regarding claim 18, Billhartz teaches a wireless communication network comprising a system according claim 6, comprising one or several nodes (see fig.5, and abstract).

4. Claim 2 is rejected under 103(a) as being unpatentable over Billhartz in view of Jain and further in view of Kuszmaul to (US 5,111,198)

Regarding claim 2, Billhartz teaches the method according to claim 1, but Billhartz does not teach combining said data packets at a destination node.

However, Kuszmaul teaches combining said data packets at a destination node (col.2, lines 9-12, discloses combining message that are routed from multiple routes)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billhartz combine data packets at destination node, as suggested by Kuszmaul. This modification would benefit the method of Billhartz to assemble received packets at each node that comes from different routes.

5. Claims 3,4,9,10,15, and 16 are rejected under 103(a) as being unpatentable over Billhartz in view of Jain and further in view of Boaz to (US-PG-PUB-2008/0048883)

Regarding claim 3, Billhartz teaches the method according to claim 1, but Billhartz doe

Art Unit: 2416

not teach replacing one of said data packets with parity bits for error detection and error correction purposes

However, Boaz teaches replacing one of said data packets with parity bits for error detection and error correction purposes (**[0064] discloses CRC error checking on every message**)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billahrtz transmit parity bits for error detection and error correction purpose, as suggested by Boaz. This modification would benefit the method of Billhartz to validate the transmitted packets.

Regarding claim 4, Billhartz teaches the method according to claim 1, but Billhartz does not teach using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz

However, Boaz teaches a transmission system based on electromagnetic radiation with a frequency in the range of 902-928Mhz (**[0063] discloses Transmit and receive frequency: 902-928 MHz**)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billahrtz implement a transmission system based on electromagnetic radiation with a frequency in the range of 902-928 MHz, as suggested by Boaz. This modification would benefit the method of Billhartz to use a wide range of frequency as a design specification.

Regarding claim 9, Billhartz teaches the system according to claim 6, but Billhartz does not teach replacing one of said data packets with parity bits for error detection and error correction purposes

However, Boaz teaches replacing one of said data packets with parity bits for error detection and error correction purposes ([0064] discloses CRC error checking on every message)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billhartz transmit parity bits for error detection and error correction purpose, as suggested by Boaz. This modification would benefit the method of Billhartz to validate the transmitted packets.

Regarding claim 10, Billhartz teaches the system according to claim 7, but Billhartz does not teach using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz

However, Boaz teaches a transmission system based on electromagnetic radiation with a frequency in the range of 902-928Mhz ([0063] discloses transmit and receive frequency: 902-928 MHz)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billhartz implement a transmission system based on electromagnetic radiation with a frequency in the range of 902-928

Art Unit: 2416

MHz, as suggested by Boaz. This modification would benefit the method of Billhartz to use a wide range of frequency as a design specification.

Regarding claim 15, Billhartz teaches the node according to claim 12, but Billhartz does not teach replacing one of said data packets with parity bits for error detection and error correction purposes

However, Boaz teaches replacing one of said data packets with parity bits for error detection and error correction purposes ([0064] **discloses CRC error checking on every message**)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billhartz transmit parity bits for error detection and error correction purpose, as suggested by Boaz. This modification would benefit the method of Billhartz to validate the transmitted packets.

Regarding claim 16, Billhartz teaches the node according to claim 12, but Billhartz does not teach using a transmission system based on electromagnetic radiation with a frequency in the range of 100 kHz to 100 PHz

However, Boaz teaches a transmission system based on electromagnetic radiation with a frequency in the range of 902- 928Mhz ([0063] **discloses Transmit and receive frequency: 902-928 MHz**)

Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to enable the method of Billhartz implement a transmission system based on electromagnetic radiation with a frequency in the range of 902-928 MHz, as suggested by Boaz. This modification would benefit the method of Billhartz to use a wide range of frequency as a design specification.

Response to Argument

1. Applicant's arguments with respect to claims 1, and 6, have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZEWDU BEYEN whose telephone number is (571)270-

Art Unit: 2416

7157. The examiner can normally be reached on Monday thru Friday, 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 1-571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Z. B./

Examiner, Art Unit 2416

/Jason E Mattis/

Primary Examiner, Art Unit 2416